Oral Anabolic Steroid Treatment and Abdominal Fat

Abstract

OBJECTIVE: To compare the effects of testosterone enanthate (TE), anabolic steroid (AS) or placebo (PL) on regional fat distribution and health risk factors in obese middle-aged men undergoing weight loss by dietary means.

DESIGN: Randomized, double-blind, placebo-controlled clinical trial, carried out for 9 months with primary assessments at 3 month intervals. Due to adverse blood lipid changes, the AS group was switched from oral oxandrolone (ASOX) to parenteral nandrolone decaoate (ASND) after the 3 month assessment point.v SUBJECTS: Thirty healthy, obese men, aged 40-60 years, with serum testosterone (T) levels in the low-normal range (2-5 ng/mL).

MAIN OUTCOME MEASURES: Abdominal fat distribution and thigh muscle volume by CT scan, body composition by dual energy X-ray absorptiometry (DEXA), insulin sensitivity by the Minimal Model method, blood lipids, blood chemistry, blood pressure, thyroid hormones and urological parameters.

RESULTS: After 3 months, there was a significantly greater decrease in subcutaneous (SQ) abdominal fat in the ASOX group compared to the TE and PL groups although body weight changes did not differ by treatment group. There was also a tendency for the ASOX group to exhibit greater losses in visceral fat, and the absolute level of visceral fat in this group was significantly lower at 3 months than in the TE and PL groups. There were significant main effects of treatment at 3 months on serum T and free T (increased in the TE group and decreased in the ASOX group) and on thyroid hormone parameters (T4 and T3 resin uptake significantly decreased in the ASOX group compared with the other two groups). There was a significant decrease in HDL-C, and increase in LDL-C in the ASOX group, which led to their being switched to the parenteral nandrolone decanoate (ASND) after 3 months. ASND had opposite effects on visceral fat from ASOX, producing a significant increase from 3 to 9 months while continuing to decrease SQ abdominal fat. ASND treatment also decreased thigh muscle area, while ASOX treatment increased high muscle. ASND reversed the effects of ASOX on lipoproteins and thyroid hormones. The previously reported effect of T to decrease visceral fat was not observed, in fact, visceral fat in the TE group increased slightly from 3 to 9 months, although SQ fat continued to decrease. Neither TE nor AS treatment resulted in any change in urologic parameters.

CONCLUSIONS: Oral oxandrolone decreased SQ abdominal fat more than TE or weight loss alone and also tended to produce favorable changes in visceral fat. TE and ASND injections given every 2 weeks had similar effects to weight loss alone on regional body fat. Most of the beneficial effects observed on metabolic and cardiovascular risk factors were due to weight loss per se. These results suggest that SQ and visceral abdominal fat can be independently modulated by androgens and that at least some anabolic steroids are capable of influencing abdominal fat.

Article Source: https://pubmed.ncbi.nlm.nih.gov/8574271/

Lovejoy JC, Bray GA, Greeson CS, Klemperer M, Morris J, Partington C, Tulley R Pennington Biomedical Research Center, Baton Rouge, Louisiana 70808-4124, USA.

International Journal of Obesity and Related Metabolic Disorders : Journal of the International Association for the Study of Obesity [1995, 19(9):614-624]

Type: Clinical Trial, Journal Article, Randomized Controlled Trial, Research Support, Non-U.S. Gov't